

DETAILED ACTION

Response to Amendment

1. The Examiner acknowledges Applicant's amendment and remarks filed 4/20/2010.
2. Claims 8 and 10-18 are pending.
3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney David Stitzel on June 04, 2010.

Allowable Subject Matter

4. Claims 8 and 10-13 are allowed.

Examiner's Amendment

5. In claim 8, line 6, please delete --having a nitric acid concentration of 6-63 wt. %--, so that it reads: "...with a nitric acid solution to grow the N face in a..."
6. On page 4, line 24 of the Specification, after 6-63, please delete --wt.--, so that it reads: "...concentration of 6-63% and a temperature of..."
7. Cancel claims 14-18.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: The generic process of GaN (bipolar) on Al₂O₃ (sapphire) substrate is well known in the art. For example, see Yuasa et al US 2002/0048964, previously used in the Non-Final Office Action filed 1/21/2009. Also, see generic processes Manabe et al US 6607595, Motoki et al US 2003/0145783, and Ogawa et al US 6723165. These prior arts all teach the process of forming a GaN bipolar face on a sapphire substrate. However, the prior arts are silent regarding subjecting the substrate to H₂ cleaning and treating with nitric acid to orient the Ga and N faces in +c and -c directions, respectively. Examiner has found no art to teach these limitations and moreover, these limitations would not be obvious over the listed prior art nor would there be motivation to perform the claimed steps.

Although Applicant's amendment of adding "wt.%" to the claim would overcome a U.S.C. 112, 2nd paragraph rejection by specifying the unit of the percent nitric acid, the amendment would not meet the requirements of U.S.C. 112, first paragraph. The above Examiner's Amendment was required to overcome a potential U.S.C. 112, first paragraph, new matter rejection, since "weight percent" was not present in the originally filed specification, and would therefore constitute as new matter.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN T. LEONG whose telephone number is (571)270-5352. The examiner can normally be reached on Monday to Friday, 9:00am to 6:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571)272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN T LEONG/
Examiner, Art Unit 1715

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1715